

sodium chloride and afterward adding enough sterile distilled water to make a normal salt solution. The vaccine was preserved by the addition of 0.25 per cent. phenol. The dose varied from 1 c.c. to 2 c.c. given at intervals of three days. After the patient has had 6 or 7 injections an infiltrated area appeared in some cases at the site of the injection about thirty-six hours after it. In one case abscesses followed the injection of the vaccine and the treatment had to be discontinued. The number of injections varied from seven to seventeen. Strickler concludes from his experience with these cases that ringworm of the scalp can be cured by vaccines, but is not prepared to state in what proportion of the cases treated a cure can be obtained in this manner.

PATHOLOGY AND BACTERIOLOGY

UNDER THE CHARGE OF

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Nature and Clinical Importance of Pseudodiphtheria Bacilli.—Numerous workers have called attention to the finding of organisms closely resembling *B. diphtheriae*, in various parts of the body. Such organisms have now been recognized as normal inhabitants of the nose, throat, ear, genitalia and skin. Under such conditions these bacteria have no significance. But the question whether these organisms can be important factors in disease processes under abnormal conditions is far from clear. Fox (*Jour. Med. Research*, 1915, xxxii, 309) has made a study of the diphtheroids in an attempt to throw some light upon their relationship to disease. Four groups of organisms are commonly recognized: (1) true diphtheria bacilli; (2) avirulent members of group one; (3) pseudodiphtheria organisms which morphologically resemble group one and two, but differ culturally and (4) organisms belonging to the so-called Hoffman group which, although bearing a basic resemblance to the above three groups, differ both morphologically and culturally. The last group has also been spoken of as pseudodiphtheria. Not a little importance has been placed upon the various members of the pseudodiphtheria bacilli in crediting them with peculiar pathogenic qualities. Thus some importance has been placed upon their presence in otitis media, vaginitis, coryza and lesions of the lymphatic glands. In all instances where the organism is found in external ulcers it is in mixed culture. Pure cultures, however, have been isolated from the

blood, spleen, lymph glands and body cavities at autopsy. The reports of these findings are in the majority of cases not clear in indicating the pathogenic qualities in man. The author expresses a desire for more thorough tests and studies of the pseudodiphtheria organism when isolated from conditions in which they appear an important etiological factor. Immunity tests and sugar reactions are particularly called for. The author points out that the results reported in Hodgkin's disease by various authors are not uniform and evidence is not available that the organisms isolated and reported are the same. With the wide-spread dissemination of members of the pseudodiphtheria group, their presence in mixed infections has been looked upon with little importance. Fox reports the isolation of these bacteria from 20 different cases, in only one of which did it appear to have an important bearing. In the majority of instances the organisms gain entrance to the body by the respiratory and genito-urinary tracts. Existing as saprophites upon the mucous membranes they probably continue a non-parasitic or symbiotic existence in the animal body. What relation these pseudodiphtheria bacilli may bear to the avirulent *B. diphtheriae*, is not known. The author was unable to bring about mutation of the true *B. diphtheriae* by methods of culture.

Tumors of the Parathyroid Glands.—There have been relatively few reports of parathyroid tumors, the majority of which have been found by accident at autopsy. In only a few instances did they cause symptoms of a character that would have a bearing upon the functions of the glands. HARBIZ (*Jour. Med. Research*, 1915, xxxii, 361) has collected the cases in the literature, the first of which was reported by De Santi in 1900. The author points out that all of the tumors reported cannot be accepted as of parathyroid origin. Not a few of them are described in intimate association with the thyroid. The author adds 2 new cases of parathyroid tumors, one of which was associated with osteomalacia and the other with paralysis agitans. In view of the work of McCallum on the increased calcium output in disturbances of parathyroids this association with osteomalacia is very significant. The presence of parathyroid disease in paralysis agitans has previously been observed by other Norwegian authors.

Splitting of the Elastic Fibers in Arteries.—In the pathological classification of arteriosclerosis not a little weight has been placed upon the minute histological findings in diseased arteries. The alterations observed in the elastic tissue of arteries have constantly attracted attention until Jores, in 1903, gave an over-important place to this finding. According to him, and his views have been widely propagated in text books, the splitting of the internal elastic lamina in arteries was a process associated with hyperplasia of the musculo-elastic layer and their presence in an artery indicated true arteriosclerosis. At that time it was pointed out that these organic changes in muscle and elastic fibers were prone to show degenerative changes of a fatty nature. Jores claimed that the splitting of internal elastic lamina was only obtained in the presence of contiguous muscular hyperplasia. In this study by McMEANS (*Jour. Med. Research*, 1915, xxxii, 377) it is shown that such splitting may occur in the absence of muscle changes

and are found in the vicinity of inflammatory processes. Arteries obtained from inflammatory lesions of diphtheria, septicemia, typhoid fever, pneumonia, and chorea were all shown to have developed a splitting of the internal elastic fiber. A similar result was observed in the neighborhood of endothelial proliferative responses where fatty streaks of the intima were present. It is thus shown that the nature of this lesion is not specific as was claimed by Jores. Thus if the splitting of the elastic lamina is a characteristic of one of the types of arteriosclerosis the etiological factors bringing it about are multiple.

Spontaneous Rupture of the Kidneys in Acute Toxic Nephritis.—Rupture of the kidney is usually a surgical condition of traumatic origin. Spontaneous rupture on the other hand is an infrequent process resulting from a slowly progressive pathological condition within the organ itself. In all, some 30 cases have been reported. Perirenal hemorrhage is obviously a constant finding. This hemorrhage may result from renal arteriosclerosis, interstitial nephritis and acute parenchymatous nephritis or from renal neoplasms, tuberculosis, abscess and infarct. The case reported by Wade (*Jour. Med. Research*, 1915, xxii, 419) was one of a negro of twenty years with acute parenchymatous nephritis. Both kidneys were markedly swollen with multiple ruptures through the capsule. Curiously enough no symptoms indicated this serious damage during life.

Thyroid and Circulatory Changes following Experimental Ligation of the Thyroid Vessels.—NEWTON (*Jour. Med. Research*, 1915, xxxii, 501) experimented upon dogs to determine the effect of ligation upon the thyroid. He points out that much care must be taken in the interpretation of the results in that the histology of the thyroid is far from uniform and that certain traumata induced during the operative procedure are apt to bring forth organic changes not dependent upon the vascular occlusion. Uniform results do not follow the ligation of the thyroid arteries or veins. More marked effect was obtained upon ligation of the veins than of the arteries. At the end of several months the alveoli are increased in size, while some increase of connective tissue may be observed. The interference with the arterial supply showed mainly a diminution in the size of the acini. In general, the results obtained by the author are so slight that this method of operative approach for the enlarged thyroid does not appear very encouraging.

The Origin of Local Eosinophilia.—The presence of a local eosinophilia in tissues is not an uncommon observation. It is most commonly seen in certain specific infections, chronic granulation tissue, and peculiar lesions such as are found in anaphylaxis. Considerable controversy has developed as to the origin of these eosinophiles. Some claim they migrate from the hemopoietic organs, others that they arise locally from mixed tissue cells of the injured part. PHOTAKIS (*Ztschr. f. Exper. Path. u. Therap.*, 1915, xvii, 270) studied the development of local eosinophilia in anaphylactic shock. Under these conditions it has been repeatedly found that the lungs have become the site of great accumulations of eosinophiles. The author found that the sensitizing dose, using serum, did not alter the numerical cellular

state, nor did bone-marrow show any change at the moment before the active anaphylactic dose was given. Having furthermore treated the animals with intravital strains, he was able to show that the local tissues in the lungs played no part in the production of the eosinophilia subsequently developing in it. He was also able to observe the direct migration of the eosinophiles into the interstitial tissues from the lung capillaries. Quite marked cellular changes indicative of an over-production of eosinophiles occurred in the bone-marrow.

Bacteria of Plant Tumors as Causative Agents of Human Disease.—

FRIEDEMANN, BENNIX, HASSEL and MAGNUS (*Ztschr. f. Hygiene*, 1915, lxxx, 114) believe that they have established an animal and vegetable pathogenicity for the *B. tumefaciens*. On four separate occasions they isolated a Gram-negative bacillus (actively motile, showing acid on litmus whey, acid and gas on dextrose and lactose, no fermentation of saccharose, liquefaction of milk and a luxuriant shiny growth on agar) from a case of suppurative arthritis and 3 cases of suppurative meningitis. These organisms have the biological characters of *B. tumefaciens*, as described by Smith and Jensen. The serum reactions, however, of one of the strains differs markedly from the others, as well as from the Jensen organism. This aberrant strain they claim agreed with the reactions of another strain of *B. tumefaciens*. They believe that there are two types of this organism distinguishable only through the serum reaction. In 2 of their cases of meningitis they observed the presence of meningococcus in direct smears but were not able to isolate them on their cultures and the organisms subsequently isolated had not been observed in the direct smears. The organisms obtained from the human did not produce any type of tumor growth in plants. All of the cultures had more or less pathogenicity for small animals. A similar organism has been isolated from the feces of those suffering from colitis.

Phagocytic Properties of the Eosinophile and the Absorption of Toxic Products of Verms.—The phagocytic property of eosinophiles is well established and has been studied by various authors. WEINBURG and SEGUIN (*Ann. de l'Inst. Pasteur*, 1915, xxix, 32) have taken up the study of the importance of this phagocytosis and also the conditions under which it manifests itself. The authors studied the action of the eosinophile in the role of the phagocyte both *in vitro* and *in vivo*. *In vitro* they observed its reaction toward (1) inert substances; (2) various bacteria; (3) protozoa; (4) red blood cells. They found that the eosinophiles possess the power of engulfing inert materials and also of phagocytizing the majority of bacteria as well as protozoa and red blood cells. Many of the bacteria, protozoa and red cells were completely digested by the eosinophiles. *In vivo* the authors studied phagocytosis by the eosinophiles in the peritoneal cavity, in the adjacent subcutaneous tissue, and in the circulating blood of the guinea-pig. They found that the phenomenon takes place with equal readiness in each of these situations and when the eosinophiles are very abundant in the blood or when they are massed together at the point of entrance of the bacteria they play an important part in protecting the organism

from infection. However, these eosinophiles play only a secondary role in phagocytosis as their presence is rather infrequent in purulent collections. Sufficient recognition is not accorded the eosinophile because the bacteriological staining technique does not usually permit of the differentiation of the various kinds of leukocytes. A third series of experiments was undertaken to demonstrate the inhibition of phagocytosis by the use of the liquid from hydatid cysts. The eosinophiles, having been subjected to the hydatid liquid for an hour at 37°, no longer showed evidence of their phagocytic qualities, although the other leukocytes retained their power of engulfing organisms. The authors state that eosinophiles from immunized animals absorb the hydatid antigen more readily than do those of normal animals. They conclude that the eosinophile leukocytes play an important role in immunity and are especially adapted to neutralizing toxic substances of certain parasites.

Primary Melanosarcoma of the Adrenals.—MACLACHLAN (*Jour. Med. Research*, 1915, xxxiii, 93) gives a description of an unusual tumor of the adrenal occurring in a male of forty-eight years. The tumor was a bilateral melanosarcoma with extensive metastases. Macroscopically the tumors were roughly triangular in shape, somewhat suggestive of the normal adrenal and almost equal in size (measurements 10 x 8 x 4 cm.). The primary and secondary growths were all intensely pigmented. There was no trace of normal adrenal either in the gross or in microscopic sections. In discussing the origin of the tumor the author concludes that there was a primary site in both adrenals arising from chromatophore cells which were probably congenitally aberrant. The absence of any bronzing of the skin and mucous membranes with complete destruction of the adrenals was emphasized. The skin, in fact, appeared pale and of a leaden color. The possibility of the sympathetic ganglia taking on the adrenal function with the prevention of pigmentation in the skin as is sometimes seen in Addison's is considered as an explanation, but another hypothesis is offered. The amount of pigment formed by the primary tumor and its secondaries is excessive, and possibly accounted for all the melanin which was being produced. It would appear further that the tumor cells had greater power to produce melanin than the skin. The author takes for granted that the pigmentation of the skin seen in Addison's disease is due to substances of the melanin group.

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